ICON-LEM simulations for the Paris RDP

The research demonstration project (RDP) Paris 2024 Olympics, will focus on the Olympic Games of Paris in 2024 in order to advance meteorological research in the context of future weather forecasting systems at 100m (or finer) resolution for urban areas. In order to broaden the model applications to this RDP, we will setup the high-resolution (100 m) ICON Large Eddy Model (LEM) over the Paris vicinity.

The joined model and observation effort will allow us to investigate the capability of the ICON-LEM to simulate urban areas (and accompanying effects as the Urban Heat Islands) as well as the onset of convective events. Especially, the ICON-LEM will be used to evaluate if and how the modeling of summer convective events over the Olympic Paris region is dependent on horizontal resolution. The potential benefit of using the high-resolution ICON-LEM (100 m) compared to standard NWP (1-2 km) can be assessed with the ICON model set-up. For this, unconventional observation data from a test-campaign in 2022, as well as satellite and radar data will be used.

The LEM shall be multiply nested with horizontal grid spacing from 600 m down to approx. 100 m. As part of the project a suitable configuration for Paris and the surrounding area will be developed, possible adjustments include the domain sizes, forcing data and applied parameterizations.